ENVIRONMENTAL DEFENSE
finding the ways that work

Attachment 1: Description of Emissions Reduction Measure Form

Please fill out one form for each emission reduction measure. See instructions on attachment 2.

Title: Implement a mix of measures to reduce GHG's through the smart and efficient use of land in the state

Type of Measure (check all that apply):

☑ Direct regulation	☐ Market-based compliance: Future Cap & Trade Sector
☑ Monetary Incentive	☐ Non-monetary incentive
☐ Voluntary	☐ Alternative Compliance Mechanism
☐ Other Describe:	

Responsible Agency: California Air Resources Board and/or the state agency identified in the measure. Where no specific agency is listed, CARB is the responsible agency.

Sector:

☐ Transportation	☐ Electricity Generation
☐ Other Industrial	☐ Refineries
☐ Agriculture	☐ Cement
☐ Sequestration	☑ Other Describe: Land Use

2020 Baseline Emissions assumed (MMT CO2 eq): See below.

Percent reduction in 2020: See below.

Cost effectiveness ($/metric ton CO2E) in 2020: See below.

Description:

California's land use patterns create excessive GHG and criteria pollutant emissions from the Transportation Sector and other sources. Our traditional development pattern is low-density, where people have difficulty using alternative forms of transportation or walking for exercise benefits. This pattern results in more emissions from the Transportation Sector than would result from denser development.

Transportation produces 40% of California's GHGs and mobile sources produce more than two-thirds of the state's air pollution. About a quarter of the mobile source emissions come from cars and light-duty trucks. The most significant criteria pollutants emitted from vehicles are oxides of nitrogen (NOx), reactive organic gases (ROG) and particulate matter. NOx and ROG are precursors to ground-level ozone formation, which is linked to stunting lung

development in children, causing and aggravating asthma and other lung diseases, and aggravating heart ailments. Particulate matter, especially fine particulate matter, is associated with a range of heart and lung ailments as well. Additionally, NOx leads to acid deposition and impairment of visibility.

The implementation of AB 32 represents a great opportunity to reduce California's GHG emissions and Californians' exposure to the other pollutants associated with transportation. The following programs have to potential to produce significant reductions of GHG and criteria pollutant emissions. CARB should provide a cohesive framework for encouraging these programs, many of which would be implemented by other state agencies or local government.

Monetary Incentives

Indirect Source Rule

A statewide Indirect Source Rule (ISR), applicable to new and existing developments, that includes GHGs among the target pollutants, will reduce VMT, help advance development patterns that favor higher density development within urbanized areas close to jobs and services, and preserve agriculture and open space. A statewide ISR will also help maintain existing pollution/GHG reductions even as population grows.

A well-designed ISR essentially ensures that developers have the opportunity to incorporate the costs of pollution generated by their development decisions into the cost of their project. It also provides an opportunity for developers to correct decisions and reduce the pollution their project will produce. If a fee is included among the mitigation measures, then developers can compensate for any emissions that can't be reduced on the project site by "buying" emissions from other sources.

The San Joaquin Valley Air Pollution Control District adopted the most advanced ISR in December 2005. It is expected to cut by nearly half the NOx and PM emissions generated by new developments in 2010. However, that rule does not include GHGs among the covered pollutants. Nevertheless, it demonstrates that given the last decade's advances in sophisticated computer modeling, it is possible to determine GHG emissions produced by vehicles and energy use associated with development projects and reduce or mitigate those emissions. Developer approaches to meeting the indirect source rule are varied but can include re-developing within city centers, encouraging an appropriate jobs-housing balance, improving the livability of city centers, and avoiding greenfield development.

CARB should develop and implement a statewide indirect source rule that covers new and existing developments, from construction through at least three decades of operation.

Transfer of Development Rights (TDR) Programs

Development rights transfer programs limit city encroachment into surrounding agricultural areas. The rights to develop agricultural land or other open space are sold to a land trust or otherwise limited, preserving it as open space. Communities, which cannot grow into that space, develop at higher densities. Higher density communities reduce VMT.

The Business, Transportation and Housing Agency should develop a TDR program and promote its implementation in fast-growing regions subject to sprawling development.

Direct Regulation

Local Climate Action Plans/ Local Plan Climate Elements

Local governments should be required to develop climate action plans or to include a climate element in their existing general plans. These plans should include a GHG inventory, a reduction target, and measures that local governments/COGs must pursue through their planning activities to meet the targets. CARB should work with local agencies to develop inventories and targets in a timely manner.

Planning That Works

Local changes are needed to allow programs that focus on the relationship between the built environment and GHGs, including the Indirect Source Rule, to be effective. For example, local zoning and planning codes should designate areas where growth cannot occur, and the codes should allow or require mixed use, variety of housing stock, and higher densities. The codes should also require "complete" streets and have design standards for sidewalks. Further, local government should eliminate codes that are counterproductive to GHG reductions (e.g. codes that require creation of parking spaces with each new residential unit). Additionally, grants, tools, incentives or requirements should be put into place for local governments to use up-to-date planning practices.

The Business, Transportation and Housing Agency, in collaboration with the Department of Planning and Research, should conduct a review of local zoning and planning codes, identify those that can restrict efforts to reduce GHGs, and develop model codes and encourage their adoption.

Monetary Incentives or Direct Regulation

Municipal Energy Efficiency

Local governments can either be given incentives or required to be energy-efficient in their development projects and existing infrastructure. These incentive/requirement programs could include: 1) using LED lighting for all new or replaced traffic lights and other features compatible with LED technology, 2) using "Hot In-place Repairing" to repair streets (this technology costs less to run than conventional methods and recycles 85% of the existing asphalt; it has 50% less GHG emissions onsite, and the additional GHG benefits of reduced waste and better roads), 3) installing municipalities ground-source heat pumps (these are 400% more efficient than gas units at space heating), 4) building municipal buildings in walkable areas that are near a mix of uses and transit, and/or 5) creating siting standards for alternative energy systems.

The California Energy Commission should develop a catalog of municipal energy efficiency measures and appropriate incentives.

Emission reduction calculations and assumptions:

These measures will reduce vehicle and energy GHG emissions by encouraging mode shifting, reducing vehicle miles traveled, and guiding smarter spending of private and public funds. The impact of any particular measure will depend upon the intensity at which it is implemented, the region of the state, the existing built environment, and whether complementary measures are enacted. Until these measures are better defined, we are unable to give emissions reductions estimates. CARB has much greater resources to deal with the complexity of these issues in its calculations.

It is clear that, with 40% of the greenhouse gas emissions coming from transportation, this sector and the integrally related land use sector must be addressed. These measures tend to be interrelated. For example, many land use improvements will result from implementation of the Indirect Source Rule, but require Planning that Works to achieve their greatest effect. Because of the attachment that people have to driving and the existence of an increasingly sprawling built environment, a variety of these measures should be implemented to get the maximum reductions from the transportation sector.

Cost effectiveness calculation and assumptions:

The cost-effectiveness of any particular measure will depend upon the intensity at which it is implemented, the region of the state, the existing built environment, and whether complementary measures are enacted. Until these measures are better defined, we are unable to give emissions reductions estimates. We have given information about existing programs and research in the discussion of the measures.

Implementation barriers and ways to overcome them:

The barriers to implementation vary by measure. Including transportation in a cap and trade program requires creation of a functional and solid cap and trade system. Existing local planning and zoning that prevent higher density developments and require certain building specifications are potential barriers to smart-growth measures. These barriers are dealt with in the measure "Planning that Works." Funding for supportive infrastructure and transit projects may be a barrier to building walkable and mass transit-oriented communities. These barriers are dealt with in "Environmental Performance in Transportation Spending," "Funding for GHG-Reducing Infrastructure Improvements," and "Tailored Mass Transit."

Potential impacts on criteria pollutants:

Many of these measures will reduce VMT and reduce driving at peak times, reducing Californian's exposure to criteria pollutants. Like GHGs, criteria pollutants decrease with

reductions in VMT and idling time, therefore implementing these measures will improve public and environmental health while reducing California's GHG emissions.

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